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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,969	04/25/2001	Larry N. McMahan	10010480-1	1256

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EXAMINER

REFAI, RAMSEY

ART UNIT	PAPER NUMBER
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2154

DATE MAILED: 02/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/842,969

Applicant(s)

MCMAHAN ET AL.

Examiner

Ramsey Refai

Art Unit

2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This action is responsive to amendment received on October 22, 2004. Claims 1, 2, 5-7, 10-16, and 18-20 were amended. Claim 4 has been canceled. Claims 21-31 have been added. Claims 1-3 and 5-31 are pending examination.

Response to Arguments

1. Applicant's arguments with respect to claims 1-3 and 5-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-23 and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emens et al (U.S. Patent No. 6,606,643) in view of Sun et al (U.S. Patent No. 6,732,264).

4. As per claim 1, Emens et al teach a method for allocating computer resources, comprising the steps of:

allocating a first resource of a first-resource type (**Figure 2, element 10**); and
allocating a second resource of a second-resource type different from the first-resource type (**Figure 2, mirror servers 16-24**) wherein

a distance from the second resource to the first resource is the shortest distance among distances between first resource to resources of the second-resource type (**column 3, line 38 – column 4, line 25 and abstract**);

the first resource and the second resource are allocated to be assigned to a program (**column 7, lines 35-67 and column 3, lines 28-37**);

the distance between the computer resources is stored (**Figure 4, element 36 and column 7, lines 57-62**).

5. Emens et al fail to show the use of firmware and upon power up, an operating system is provided, from the firmware, with the distances.

6. However, Sun et al shows the use of firmware that includes program code known as BIOS, which contains boot code used when the system is reset or powered on. BIOS boot code also contains hardware configuration and resources tables that contain lists of resources (**column 1, lines 20-60 and column 2, lines 10-44**). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Emens et al and Sun et al because Sun et al's use of firmware and providing an operating system with data from firmware in Emens et al's method would decrease the processing time of an information request sent by a client by allowing the client computer to obtain a previously stored list of the nearest server upon startup from firmware without the need to re-query each server among the mirror servers to locate the nearest server.

7. As per claim 2, Emens et al teach a method where in the distance between the computer resources is selected from a group consisting of: a distance measured from one resource to another resource and a distance measured relative to a distance used as a reference (**column 3, lines 46-65**).

8. As per claim 3, Emens et al teach a method wherein the distance between the computer resources is measured in time units (**column 3, lines 46-65 and abstract**)

9. As per claim 5, Emens et al teach a method wherein the distance between the computer resources is measured by the distance between nodes containing the resources (**column 3, lines 28-58, abstract, and column 4, lines 7-25**).

10. As per claim 6, Emens et al teach a method wherein the distance between the computer resources is provided by the time taken to communicate from one resource to another resource or the time taken to transfer data from one resource to another resource (**column 3, lines 28-58, abstract, and column 4, lines 7-25**).

11. As per claim 7, Emens et al teach a method wherein the resources reside in a plurality of nodes each of which includes at least one resource being either an I/O device, a memory device, or a processor (**column 3, lines 46-58 and abstract; mirror servers**).

12. As per claim 8, Emens et al teach a method wherein resources in a node are on a same bus or share a point-to-point link (**Figure 2; internet**).
13. As per claim 9, Emens et al teach a method wherein the first resource is associated with a storage device storing the program or storing data associated with the program (**Figure 1, element 10 and column 7, lines 35-54**).
14. As per claim 10, Emens et al teach a method comprising the step of allocating a third of a third-resource type based on the shortest distance between the first resource to resources of the third-resource type; or the shortest distance between the second resource and the resource of the third-resource type (**column 11, line 40-column 12, line 6**).
15. As per claims 11- 20, they contain similar limitations as claims 1-3 and 5-10 above, therefore are rejected under the same rationale.
16. As per claim 21, Emens et al teach a method for allocating computer resources, comprising the steps of:
- providing a plurality of first resources of a first-resource type (**Figure 2, element 10 and column 11, lines 56-58; clients**);
 - providing a plurality of second resources of a second-resource type different from the first-resource type (**Figure 2, mirror servers 16-24**);

allocating a first resource of the first resource type and a second resource of the second-resource type (**abstract and column 4, lines 26-60**); wherein

a distance between the first resource and the second resource is the shortest distance among the distances between the plurality of first resources to the plurality of second resources (**column 3, line 46-column4, line 25**);

the first resource and the second resource are allocated to be used by a program (**column 7, lines 35-65**);

distances between the computer resources is stored (**Figure 4, element 36 and column 7, lines 57-62**).

17. Emens et al fail to show the use of firmware and upon power up; an operating system is provided, from the firmware, with the distances.

18. However, Sun et al shows the use of firmware that includes program code know as BIOS, which contains boot code used when the system is reset or powered on. BIOS boot code also contains hardware configuration and resources tables that contain lists of resources (**column 1, lines 20-60 and column 2, lines 10-44**). It would have been obvious to one of the ordinary skill in the art at the time of the applicant's invention to combine the teachings of Emens et al and Sun et al because Sun et al's use of firmware and providing an operating system with data from firmware in Emens et al's method would decrease the processing time of an information request sent by a client by allowing the client computer to obtain a previously stored list of the nearest server upon startup from firmware without the need to re-query each server among the mirror servers to locate the nearest server.

19. As per claim 22, Emens et al teach a system comprising:

an operating system (**Figure 2 and column 7, lines 35-67**);

wherein

a distance between the I/O device to the memory device is the shortest distance among distances between the plurality of I/O devices to the plurality of memory devices (**column 3, line 45-column 4, line 25**);

a distance between the I/O device to the processor is the shortest distance among distances between the plurality of I/O devices to the plurality of processors (**column 3, line 45-column 4, line 25**);

a distance between the memory device to the processor is the shortest distance among distances between the plurality of memory devices to the plurality of processors (**column 3, line 45-column 4, line 25**).

20. Emens et al fail to show the use of firmware and upon power up; an operating system is provided, from the firmware, with the distances.

21. However, Sun et al shows the use of firmware that includes program code known as BIOS, which contains boot code used when the system is reset or powered on. BIOS boot code also contains hardware configuration and resources tables that contain lists of resources (**column 1, lines 20-60 and column 2, lines 10-44**). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Emens et al and Sun et al because Sun et al's use of firmware and providing an operating system with data from firmware in Emens et al's method would decrease the processing time of an information request sent by a client by allowing the client computer to obtain a previously stored list of the nearest

server upon startup from firmware without the need to re-query each server among the mirror servers to locate the nearest server.

22. As per claim 23 Emens et al teach a system comprising:
a plurality of nodes having resources (**Figure 2 mirror servers**);
an operating system running on a processor in a node of the plurality of nodes (**Figure 2; element 12**).

23. Emens et al fail to show the use of firmware and upon power up; an operating system is provided, from the firmware, with the distances.

24. However, Sun et al shows the use of firmware that includes program code know as BIOS, which contains boot code used when the system is reset or powered on. BIOS boot code also contains hardware configuration and resources tables that contain lists of resources (**column 1, lines 20-60 and column 2, lines 10-44**). It would have been obvious to one of the ordinary skill in the art at the time of the applicant's invention to combine the teachings of Emens et al and Sun et al because Sun et al's use of firmware and providing an operating system with data from firmware in Emens et al's method would decrease the processing time of an information request sent by a client by allowing the client computer to obtain a previously stored list of the nearest server upon startup from firmware without the need to re-query each server among the mirror servers to locate the nearest server.

25. As per claim 26, Emens et al teach wherein a node of the plurality of nodes includes one or a combination of one or more of an I/O controller connected to I/O devices, a memory controller connected to memory arrays, and one or more processors (**Figure 2, mirror servers**).

26. As per claim 27, Emens et al teach a node of the plurality of nodes includes a bus connecting an I/O controller connected to I/O devices, a memory controller connected to memory arrays, a plurality of processors, and a bridge connecting to another node of the plurality of nodes (**Figure 2**).

27. As per claim 28, Emens et al teach an I/O device is first allocated, then a memory array is allocated; a distance between the memory array to the I/O device is the shortest distance among a plurality of distances between a plurality of memory arrays to the I/O device (**abstract and column 3, line 37 – column 4, line 25**).

28. As per claim 29, Emens et al teach a processor is allocated; a distance between the processor to the I/O device is the shortest distance among a plurality of distances between a plurality of processors to the I/O device (**column 3, line 37-column 4, line 25 and abstract**).

29. As per claim 30, Emens et al teach a processor is allocated; a distance between the processor to the memory array is the shortest distance among a plurality of distances between a plurality of processors to the memory array (**column 3, line 37-column 4, line 25 and abstract**).

30. As per claim 31, Emens et al teach wherein the first resource is an I/O device connected to a storage device storing the program or storing data associated with the program (**column 7, lines 35-67, column 12, lines 7-32, and Figure 2**).

31. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emens et al (U.S. Patent No. 6,606,643) in view of Sun et al (U.S. Patent No. 6,732,264) and in further view of Zadikian et al (U.S. Patent No. 6,724,757).

32. As per claim 24, Emens et al fail to teach an interconnect fabric which includes node-controller chips and cross-bar chips.

33. However, Zadikian et al teach the use of a switching fabric that supports six combinations of connections (**column 3, lines 35-40**), a node controller that contains routing protocols (**Figure 1A, element 120**) and the use of a crossbar device (**column 16, lines 10-28**). It would have been obvious to one of the ordinary skill in the art at the time of the applicant's invention to combine the teachings of Emens et al, Sun et al, and Zadikian et al because Zadikian et al's use of an interconnect fabric, node controller and crossbar in Emens et al and Sun et al's system would have provided a system that can route information from node to another on a network.

34. As per claim 25 Emens et al fail to teach a node-controller chip.

35. However, Zadikian et al teach the use of a switching fabric that supports six combinations of connections (**column 3, lines 35-40**), a node controller that contains routing protocols (**Figure 1A, element 120**) and the use of a crossbar device (**column 16, lines 10-28**). It would have been obvious to one of the ordinary skill in the art at the time of the applicant's invention to combine the teachings of Emens et al, Sun et al, and Zadikian et al because Zadikian et al's use of an interconnect fabric, node controller and crossbar in Emens et al and Sun et al's system would have provided a system that can route information from node to another on a network.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Richardson et al (U.S. Patent No. 6,249,802)
- b. Andrews et al (U.S. Publication No. 2002/0038360)
- c. Karger et al (U.S. Publication No. 2004/0083289)
- d. Rune (U.S. Patent No. 6,304,913).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Refai whose telephone number is (571) 272-3975. The examiner can normally be reached on M-F 8:30 - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RR
February 8, 2005

JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
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